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THE FOREST WORKER

MARCH, 1926.

FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON D.C.



THE
TECHNIC

REVIEW

OF THE
TECHNICAL

ARTS

THE FOREST WORKER

March, 1926

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C O N T E N T S

	<u>Page</u>
Announcements	3-10
State forestry departments and organizations.	11-18
Education and extension	19-26
Forest Service notes	27-32
General forest news	33-36
Foreign notes	37-42
Personals	43-44
Bibliography	45-47

ANNOUNCEMENTS

American Forest Week--April 18-24, 1926

GROW TIMBER PREVENT FOREST FIRES

These two thoughts are the keynote for the observance of American Forest Week this year.

Timber growing, its importance and its possibilities, must be emphasized more if the Nation is to be saved from a timber shortage.

"Strange as it may seem," said President Coolidge in his address before the Wood Utilization Conference last year, "the American people, bred for many generations to forest life, drawing no small measure of their wealth from the forest, have not yet acquired the sense of timber as a crop.... Fully one-fourth of our land area ought to be kept in forest---...not poor dwindling thickets of scrub, but forests of trees fit for bridges and houses and ships. Handled by the best timber-cropping methods, our present forest lands could be made to grow even more timber each year than we now use. But much of our cut-over land, lying idle or half productive, is now an immeasurable loss.... Our forest problem is a land problem of the first magnitude."

Primarily this is because of the tremendous force of inertia, habit, and point of view. If as a people we understood how to grow timber and why growing timber is becoming more and more profitable, large numbers of forest landowners, large and small, would be doing it; most farmers would be doing it; many firms and corporations of the wood-using industries would be doing it. It would be in the air. If everybody were to begin to say "Grow timber! The thing to do for our forests and with our forests is to grow timber," timber growing would spread amazingly.

American Forest Week

Chairmen of State Committees

Further advances in bringing about the observance of American Forest Week, both locally and nationally, are expected this year from the extension of the system of State committees throughout the country.

State chairmen have already been selected and the organization of the committees is going forward in many of the States. These committees will serve to broaden the scope of the observance of the week and at the same time correlate the activities of the various supporting organizations. They will not, however, take the place of any organization already in the field or lessen the need for active work on the part of those which have been engaged in the work in the past.

Everyone who has at heart the protection and perpetuation of our forests should give his support to the committee in his own State as well as to the national movement.

A list of the State chairmen is given below. In some cases acceptances have not been received from the men chosen at the time the FOREST WORKER "goes to press," but the list is correct for the most part.

<u>State</u>	<u>Chairman</u>	<u>Residence</u>
Alabama	John L. Kaul	Birmingham
Alaska	Judge Charles E. Bunnell, Pres., Alaska Agricultural College and School of Mines	Fairbanks
Arizona	Fred J. Elliott	Phoenix
Arkansas	F. W. Scott	Huttig
California	Francis Cuttle	Riverside
Colorado	John Evans, International Trust Co.	Denver
Connecticut	T. S. Woolsey, Jr.	New Haven
Delaware	Dean W. A. McCue, University of Delaware Experimental Farm	Newark
Florida	W. L'E. Barnett	Mount Dora
Georgia	Col. Henderson Hallman, Room 731 Candler Bldg.	Atlanta
Idaho	Prof. F. G. Miller, University of Idaho	Moscow

<u>State</u>	<u>Chairman</u>	<u>Residence</u>
Illinois	Lewis B. Springer	Wilmette
Indiana	Dean Stanley Coulter, Purdue University	Lafayette
Iowa	E. T. Meredith	Des Moines
Kansas	Prof. Albert Dickens, Horticulturist, Kansas State Agricultural College	Manhattan
Kentucky	Tom Wallace, Louisville Times	Louisville
Louisiana	Col. W. H. Sullivan, Pres., Great Southern Lumber Co.	Bogalusa
Maine	Forrest H. Colby	Bingham
Maryland	Maj. Geo. L. Wood, Continental Bldg.	Baltimore
Massachusetts	Harris A. Reynolds	Boston
Michigan	T. F. Marston, Sec'y, Northeast Michigan Development Bureau	Bay City
Minnesota	Clarence B. Winter, Ex Vice Pres., Minneapolis Minnesota Tree Society, 756 Builders' Exchange	
Mississippi	Charles Green, Pres., Eastman, Gardiner & Co.	Laurel
Missouri	J. H. Allen, Pres., Continental Tie and Timber Co.	St. Louis
Montana	Joseph M. Dixon	Missoula
Nebraska	Lloyd Thomas, Sec'y, Hastings Commercial Club	Hastings
Nevada	George D. Oliver	Hobart Mills
New Hampshire	W. R. Brown	Berlin

<u>State</u>	<u>Chairman</u>	<u>Residence</u>
New Jersey	Charles Lathrop Pack	Lakewood
New Mexico	Dana Johnson, Editor, Santa Fe New Mexican	Santa Fe
New York	Hon. John D. Clarke	Frashers
North Carolina	Col. Joseph H. Pratt	Asheville
North Dakota	Prof. C. B. Waldron, State Agricultural College	Agricultural College
Ohio	Mrs. W. W. Milar, 405 Crosby St.	Akron
Oklahoma	John Easley	Ardmore
Oregon	F. A. Elliott	Salem
Pennsylvania	Dr. Henry S. Drinker	Merion Station
Rhode Island	Howard L. Hitchcock	West Kingston
South Carolina	C. F. Prettyman	Summerville
South Dakota	Chas. W. Pugsley	Brookings
Tennessee	Maj. Rutledge Smith, Pres., Tennessee Forestry Ass'n, Cum- berland Lodge Bldg.	Nashville
Texas	R. A. Gilliam, 901 Cedar Hill Ave., Station A	Dallas
Utah	Wm. H. Bywater	Salt Lake City
Vermont	Mortimer R. Proctor	Proctor
Virginia	William D. Tyler, Clinchfield Coal Co.	Dante
Washington	Dean Hugo Winkenwerder, College of Forestry, Univ. of Washington	Seattle
West Virginia	Geo. P. Whitaker, Wheeling Steel Corp.	Wheeling

<u>State</u>	<u>Chairman</u>	<u>Residence</u>
Wisconsin	Lawrence C. Whittet, Sec'y, Milwaukee Chamber of Commerce	Milwaukee
Wyoming	A. D. Faville, State Com. Agri., Capitol Bldg.	Cheyenne

American Forest Week

Forest Service Issues New Publications

The following new publications are being issued by the Forest Service for use during American Forest Week. It is expected that they will be ready for distribution not later than March 15. No charge will be made either for the publications or for postage.

GROW TREES--A 16-page pamphlet covering the essential facts about timber growing and the observance of American Forest Week. Specially prepared for the week.

FORESTRY FACTS--A 16-page pamphlet of short items designed particularly for the use of editors, speakers, teachers, and club workers.

PRESIDENT'S PROCLAMATION--Should be used as a poster in schools, post offices, libraries, and other public places.

PROGRAM FOR SCHOOLS, BOY SCOUT TROOPS, FOUR-H CLUBS, AND OTHER BOY AND GIRL ORGANIZATIONS--Contains prose and poetical selections for use in exercises.

ARBOR DAY--Farmers' Bulletin 1492--A new 32-page pamphlet. Traces the history of Arbor Day and contains planting suggestions and a discussion of municipal forests.

PINES FOR PROFIT--New leaflet dealing with growing pine timber in the South.

Envelope stuffers

AMERICAN FOREST WEEK

THE NEGLECTED CAMP FIRE

CARELESSNESS WITH CIGARETTE STUMP

American Forest Week

The Pennsylvania Plan

The plan of the Pennsylvania Department of Forests and Waters for observing American Forest Week has been worked out with a view of directing attention to a certain phase of the forestry movement on each of the seven days. Although the plan as a whole may not be adaptable to other States, it may contain valuable suggestions for all. With that idea it is given here in outline.

Sunday, April 18--Trees and Religion Day.

Trees and forests as beautiful and beneficent works of nature, and as friends and servants of man.

Monday, April 19--Forest Protection Day.

Fundamental importance of protecting the forest from fire, insects, and diseases.

Tuesday, April 20--Forest Recreation Day.

Forests as recreation grounds. The recreational use of public forests--national and State. Game and fish on the forests.

Wednesday, April 21--Community Forest Day.

The value of the community forest for revenue and recreation. Lessons from community forests owned and managed by towns and counties in Europe and America.

Thursday, April 22--Tree Study Day.

Getting acquainted with the native tree species.

Friday, April 23--Arbor Day.

Tree planting by schools and other organizations. Study of tree planting and timber growing on cut-over or other idle land.

Saturday, April 24--Forest Improvement Day.

What needs to be done to better our present timbered areas. Improvement cuttings. Removal of material that hinders the best growth of the valuable trees. Slash disposal. Cleaning out insect and disease infested trees. Roads and trails to make the forests accessible for use and to improve and protect them.

International Congress of Plant Sciences

An international congress for all workers in the plant sciences is to be held at Ithaca, N. Y., August 16-23. The invitation is extended to every country in the world and includes investigators and teachers in botany, plant chemistry, plant pathology, bacteriology, agronomy, horticulture, and forestry. This will be the fourth international botanical congress, and the first such conference ever held in the United States. Plans include formal programs, round table discussions, noncommercial exhibits, and inspection tours. For about one-fourth of the available time the participants will be grouped into sections. The sections thus far authorized, with their secretaries, are as follows:

Agronomy--R. G. Wiggans, Cornell University, Ithaca, N. Y.

Bacteriology--J. M. Sherman, Cornell University, Ithaca, N. Y.

Cytology--L. W. Sharp, Cornell University, Ithaca, N. Y.

Morphology, Histology, and Paleobotany--D. S. Johnson, Johns Hopkins University, Baltimore, Md.

Ecology--H. L. Shantz, U. S. Bureau of Plant Industry, Washington, D.C.

Forestry--R. S. Hosmer, Cornell University, Ithaca, N. Y.

Horticulture--A. J. Heinicke, Cornell University, Ithaca, N. Y.

Physiology--O. F. Curtis, Cornell University, Ithaca, N. Y.

Pathology--Donald Reddick, Cornell University, Ithaca, N. Y.

Pharmacognosy and Pharmaceutical Botany--H. W. Youngken, Massachusetts College of Pharmacy, Boston, Mass.

Taxonomy--K. M. Wiegand, Cornell University, Ithaca, N. Y.

Mycology--H. M. Fitzpatrick, Cornell University, Ithaca, N. Y.

Genetics--C. E. Allen, University of Wisconsin, Madison, Wis.

Communications regarding the congress should be addressed as indicated below:

1. Concerning round tables and other strictly sectional matters--to the appropriate sectional secretary.

2. Concerning exhibits and general program matters--L. W. Sharp, Cornell University, Ithaca, N. Y.

3. Concerning excursions, collecting trips, inspection tours, local arrangements, transportation, etc.--H. H. Whetzel, Cornell University, Ithaca, N. Y.

4. Concerning the congress in general--B. M. Duggar, Missouri Botanical Garden, St. Louis, Mo.

How to Get Japanese Tree Seeds

Dr. I. Miura of the Imperial University of Tokyo writes that he has made an arrangement whereby the Society of Forest Chemistry, in the Institute of Forest Chemistry, Tokyo Imperial University, Komaba, Tokyo, Japan, undertakes to handle European and American orders for seeds of Japanese forest trees. Payment may be either in dollars or in pounds. Doctor Miura states that orders for seeds of the larch should be placed not later than the end of May, 1926. The prices per kilogram quoted for seeds of the most popular species are as follows:

<i>Larix leptolepis</i> , Gord.....	35 shillings
<i>Cryptomeria japonica</i> , Don.....	4 "
<i>Pinus densiflora</i> , Sieb. et Zucc.....	6 "
<i>Pinus thunbergii</i> , Parl.....	6 "
<i>Abies Veitchii</i> , Lindl.....	20 "
<i>Thuja japonica</i> , Maxim.....	30 "
<i>Ginkgo biloba</i> , L.....	2 "
<i>Castanea pubinervis</i> , Schneid.....	3 "
<i>Pasania cuspidata</i> Oerst.....	3 "
<i>Quercus myrsinaefolia</i> , Blume.....	2 "
<i>Ilex crenata</i> , Thunb.....	6 "
<i>Ilex pedunculosa</i> , Mig.....	6 "
<i>Paulownia tomentosa</i> , Bail.....	16 "

Orders should be sent direct to Doctor Miura and not to the Forest Service.

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STATE FORESTRY DEPARTMENTS AND ORGANIZATIONS

Mississippi Forestry Bill Gets a Flying Start

The forestry bill introduced in the Mississippi Legislature as a result of a special message of Governor Whitfield has passed the House by a large majority.

Under the provisions of this bill a State forestry commission would be created including the governor, the commissioner of agriculture, the State land commissioner, and six citizens selected for their knowledge of and interest in forestry and the use of forest products. Under the direction of a State forester the commission would be authorized to institute an organized forest fire control system, investigation and study of forestry conditions, cooperation with the Federal Government, other State departments, municipalities, corporations, and individuals in reforestation and timber production, and an educational campaign in behalf of forestry. These activities would be financed chiefly through license taxes from the forest products industries, and through Federal cooperative funds and contributions from private landowners. Not more than \$20,000 of the annual income from the privilege license tax received from the forest products industries would be devoted to the forestry fund. Provision would be made for the creation of State forest preserves and parks through gifts, and the Federal Government would be given permission to create national forests in the State. The public schools and State colleges would be directed to take up the study of forestry.

In addition to this bill the Mississippi Legislature has pending before it a resolution providing for an amendment to the State constitution, as follows:

"For the purpose of securing reforestation of cut-over or partially or completely denuded lands, the legislature may provide a special mode of assessing and taxing such lands and the timber thereon, and through a State agency, created by the legislature, may contract with the owners of such lands to reforest such lands in accordance with the rules and regulations of the United States Forestry Bureau, and provide in such contracts for a fixed assessed value on the land, apart from the timber, for a specified number of years, not exceeding fifty. The sole tax on the timber grown thereon shall be paid as a severance tax, when and as cut, and shall not exceed ten per cent of the value thereof."

The statement of the special legislative commission appointed to draft the bill reads in part as follows:

"There are about 2,100 sawmills, large and small, in Mississippi. The lumber industry of Mississippi employs about 40,000 persons annually, with a payroll of more than \$35,000,000 a year. The State produces more than three billion feet of all kinds of lumber per year. Forest products bring in an annual revenue of more than \$166,000,000. The forest products industries pay about 56 per cent of all taxes paid by all manufacturing industries in Mississippi and the capital invested by the forest products industries is about 60 per cent of the capital of all the manufacturing industries in the State.

"About 500,000,000 feet of lumber is consumed in Mississippi each year and this total will be increased in the years to come. According to the best estimates, there are about 30 billion feet of Southern pine of commercial size and 25 billion feet of hardwoods of commercial size now standing in Mississippi; the annual lumber cut of the State is about $2\frac{1}{2}$ billion feet of pine and half a billion feet of hardwoods."

"There are 19 million acres of cut-over and unimproved lands in Mississippi, the vast proportion of which are not now needed or are unsuited for agricultural development. Virtually all of this area is idle land and producing no revenue at present although the owners are obliged to pay taxes on it. Idle lands are a liability to the State and to the individual owners. Until these lands are needed for agricultural or other purposes, virtually all of them could be made to yield revenue if put to growing trees."

"There are 17,000,000 acres of forest land in Mississippi and of this area about 7,000,000 acres, or more than 41 per cent, consists of farm woodlands which for the most part are owned by the farmers. Mississippi farmers derive a revenue of \$16,250,000 per year from their woodlands. The average annual income of the Mississippi farm from its timber products is about \$240. Farmers of the State are receiving from \$3 to \$7 per thousand feet for their sawlogs cut from their woodlands. Many farmers in Mississippi are making from \$50 to \$100 a month selling pulpwood, crossties, fence posts, and sawlogs from their timber holdings."

"More than one-third of the 19,000,000 acres of cut-over and unimproved lands in Mississippi are owned by farmers and small land holders."

"The amount provided for the work of the proposed Mississippi State Forestry Department is notably small when compared to the budgets of other southern States, many of which have smaller stands of mature timber and less areas of young tree growth and cut-over tracts. However, for beginning the forestry work in Mississippi, it is believed the amount provided for in the bill, together with such contributions as may be made by timberland owners, will be sufficient for initiating and carrying on the essential work that should be done."

Forestry Commission Proposed for South Carolina

In considering the forestry bill introduced by Senator Spivey the Legislature of South Carolina is dealing with a matter of exceptional importance to that State. More than half the total area of South Carolina is covered with some sort of forest growth. Farm woodlands comprise not much less than half of the 12,426,675 acres included in the farms of the State, and would comprise more than half that area if the farm lands now standing idle had been planted to trees. Only the three staple farm crops of cotton, corn, and tobacco rank higher in value than the annual farm timber crop. In addition to its more than 5,000,000 acres of farm woodland the State contains almost as great an area of forest in larger timber tracts.

The peak of lumber production in South Carolina was reached in the year 1909 with a cut of 897,660,000 board feet. Since then, in spite of dwindling timber resources, the mills have maintained an average annual output of 750,000,000 board feet. Meanwhile great quantities of the State's timber have annually been destroyed or injured by fire. Even with very imperfect facilities for getting reports of fires the area burnt over annually during the period 1916-1924 is known to have averaged at least 851,043 acres. In 1923 the 7,000 fires reported covered an area of more than 4,000,000 acres. Measures for protecting and growing timber are thus much overdue, and it is not surprising that public sentiment for such measures has been developing strength for some years.

The forestry bill which is now pending before the General Assembly of South Carolina and has been favorably reported by the Senate Committee proposes the creation of a State commission of forestry to consist of five members appointed by the governor: two lumbermen, one farmer who is a landowner, one member selected from the public at large, and the president of Clemson Agricultural College. It would be the duty of this commission to report to the legislature annually upon forest conditions in the State; to take action and afford the necessary organized means to prevent, control, and extinguish forest fires; to furnish advice and assistance to private landowners and develop public appreciation of the advantages of forest culture and preservation; to cooperate with the Federal Government; and to appoint and employ a State forester who would be charged with the direction of the forestry activities authorized by the act. The bill does not call for a direct State appropriation, but would provide the funds necessary for the conduct of State forestry work by means of a special severance tax on timber.

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Forestry Notes from Arkansas
By W. R. Mattoon, U. S. Forest Service

(Mr. Mattoon has just completed a five-week tour of Arkansas, on which he conferred with members of the agricultural extension service of the State university and with the county agents of 16 counties.)

It seems likely that by next July Arkansas will have an extension forester employed by the College of Agriculture of the University of Arkansas with the aid of Federal funds allowed under the Clarke-McNary Act. In the opinion of Dr. A. C. Millar, the leader of the forestry movement in the State, what forestry in Arkansas needs most is an extension forester working among the county agents and a teacher of forestry at the university. It appears that the failure of the bill proposed last year for the establishment of a State forestry department was due to the fact that the farmers had very little information about it and suspected that it was designed primarily for the benefit of the lumbermen, many of whom worked for the bill.

No less than eight lumber companies of Arkansas are now working on the basis of a perpetual cut of timber. These are all located south of the Arkansas River, in the shortleaf-loblolly pine belt. The Crossett Lumber Co. of Crossett and the Fordyce Lumber Co. are guided in their woods operations by Wm. K. Williams, graduate forester. The Diercks Lumber Co., with some 300,000 acres of timberland in the State, employs Wm. L. Hall, formerly of the U. S. Forest Service. Other lumber companies conserving their timber are the Union, with a mill at Huttig, and the Long-Bell, with 200,000 acres in the State. The latter employs as its forester C. E. Baxter, who is not technically trained for forestry but has won the confidence and good will of the country people and in a region formerly badly burned each year has been successful in developing a public sentiment against burning. The Louisiana Pulp and Paper Co., with its mill just over the line in Louisiana--where it uses natural gas for fuel--also has a place on the conservation list. The latest to join it are the Malvern and Wisconsin-Arkansas Lumber Cos., located at Malvern, which have recently decided to grow timber instead of selling off their cut-over lands and closing out.

In the great northwestern section of Arkansas, lying south and west of the Ozark National Forest, timber is scarce and high priced. In Pope County, for example--the county whose seat, Russellville, is headquarters for the Ozark National Forest--every tree for at least 10 miles around the town has a good money value on the stump. Wood is used extensively for fuel, and all kinds, including oak, hickory, and elm, are valued at 75 cents a cord on the stump. Good coal is mined near-by but brings such a high price that former coal users are being driven to the use of wood.

Mine timbers, also railroad ties, are in high demand, and trees suitable for sawlogs are scarce. This situation is largely accounted for by the extreme waste in the past in cutting cooperage stock and in clearing "new lands"--which after being worked for a few years only were "turned out."

One hundred miles from Russellville, near the northwest corner of the State, is Fayetteville, the seat of the University of Arkansas. County Agent McMurray of this place recently reported that the scarcity of timber suitable for farm buildings is greatly slowing up the development of dairy-ing, for which the county is otherwise well suited. Farmers living 10 or 15 miles from the railroad are buying lumber and hauling it out to their farms, because the native timber is so nearly gone.

The rural population of Arkansas in general have not yet formed the habit of thinking of the future timber needs of the State. Recently a farmer who strolled into a county agent's office and was told that the subject of farm forestry was to be taken up in the county remarked with a sneer, "I reckon our sassafras bushes can take care of themselves." "But aren't we going to need some timber in the future?" the agent asked. The farmer's reply was "Well I'll be gone then, and the other fellow can look after his own self."

Four kinds of timber are being "mined" in large amounts in Arkansas--pine, oak, gum, and hickory. Except in the coastal plain, occupying the southern fourth of the State, there are many hickory mills, turning out automobile and wagon spokes and handles for hammers, sledges, picks, axes, and peavys. One wonders what those 6-foot hickory billets can be intended for until he sees a car being loaded with 6-foot peavy and cant-hook handles for the lumbermen of the Pacific Northwest. The National Harvester Co. alone requires many carloads of singletrees and doubletrees for horse-drawn implements. For all such purposes the Arkansas forests supply annually more than 20 million board feet of hickory.

Revenues from Pennsylvania State Forests

The income from the State forests of Pennsylvania during 1925 amounted to \$107,499. Much of this was derived from the sale of chestnut timber killed by blight. Receipts from the sale of recreational privileges reached their highest mark at \$12,611.

In 1900 the receipts from the State forests of Pennsylvania were only \$1,227. In 1912 they reached \$12,585. Great increases have occurred in the three-year period 1923-1925, with receipts composing 48 per cent of the total for the past 25 years.

Connecticut Highway Shade Tree Conference

The first Connecticut highway shade tree conference was held in New Haven on February 6 under the auspices of the Connecticut Forestry Association and the Yale School of Forestry. In a statement accompanying the announcement of this conference Dean Graves of the Yale Forest School said:

"The scenic features of Connecticut constitute one of its great assets. We have no lofty mountains or great lakes, but there is a charm about our country-side that is distinctively its own and which is bringing into the State great numbers of people as residents or visitors. The preservation of the scenic features of the highways is therefore of utmost importance. The defacement of wooded slopes by fire, the stripping of beautiful forests adjacent to the traveled roads, and the cutting of ancient avenues of maples and other trees planted by those who have gone before impair the attractive areas of the State and are a public injury. We are building a system of highways unmatched anywhere. We can greatly increase their scenic value to the people by intelligent roadside planting; we can preserve the unique character of many beautiful stretches of road by protecting the existing trees or strips of woods that border upon them."

E. C. Welden, deputy State highway commissioner, explained how under modern traffic conditions the public safety often necessitates the removal of fine old trees. He stated that the establishment of definite boundaries for highways, authorized by the 1925 legislature, is the first step in conserving roadside beauty; also that the highway commission has recently appointed an expert to study the landscape improvement of the State's highways and hopes soon to plant certain short sections of abandoned locations. P. L. Buttrick, secretary of the Connecticut Forestry Association, showed a series of slides demonstrating that it is possible to reconcile roadside trees and electric wires without appreciable sacrifice of either beauty or utility.

Resolutions adopted by the conference declare that authority should be given to the State highway commission to care for as well as to plant shade trees, and that the necessary appropriations should be made for both purposes; that local tree wardens should be placed under the supervision of some State department, preferably the State park and forest commission; and that existing legislation regarding pruning of trees on public highways should be clarified.

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Bills to amend Section 2 of the Clarke-McNary Law have been introduced in both houses of Congress. They would do away with the certifying of accounts by State auditors and authorize the Secretary of Agriculture to make Federal expenditures on the certificate of State foresters or similar State officials.

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Ten Forestry Meetings in West Virginia

Ten meetings in as many cities and towns of West Virginia are scheduled for the period March 18-May 12 by the West Virginia Forest, Parks, and Conservation Commission. The commission asks that representatives of farm bureaus, chambers of commerce, clubs, timberland owners, and lumbermen, come to these meetings prepared to define local forest and farm woodland problems and the conditions which will justify local landowners in replanting forest areas, and to state whether there are any outstanding sites in their sections deserving consideration as game refuges, State parks, or State forests. The schedule announced is as follows:

March 18 - Wheeling	April 9 - Elkins
" 19 - Parkersburg	" 19 - Beckley
" 20 - Huntington	" 21 - Bluefield
April 5 - Martinsburg	" 23 - Marlinton
" 7 - Keyser	May 11-12 Clarksburg

Mistakes that Make Large Fires

Maryland had an exceptionally bad forest fire year in 1925. More fires were reported than in any other year on record. On the other hand, the number of acres per fire was smaller than for any other year, and the total area burned over, 34,061, represents a reduction of nearly 20,000 acres from the total of either 1923 or 1924. About 1.5 per cent of all the woodland in the State was burned over during the year. At that rate the average piece of woodland would be liable to a burning about once every 75 years.

"What makes the yearly average (of the number of acres burned) so large?" The answer is this: Through the mistake of some individuals, each year a few fires become very large, dwarfing in size the usual run of fires.

"The mistakes which make large fires can all be classified under the following heads. 1. Failure to report fires. 2. Neglect or tardy action by forest wardens. 3. Failure to arrange for sufficient help in advance and to bring enough men and tools to the fire. 4. Unwise use of backfire. 5. Leaving a fire without patrolmen before it is entirely out, resulting in breakovers and the 'second day' fire."

News Letter, Maryland State Department of Forestry, January.

New England's Planting Total

Approximately 59 million trees have been planted in the New England States, according to the Green Mountain State Forest News. It is estimated that 49,100 acres have been reforested by this planting and that of this total area 45,000 acres are well stocked at the present time. The approximate figures given by the Vermont Forest Service for the individual State's are as follows:

State	Number of trees planted on			Total number of trees planted
	State lands	Municipal lands	private lands	
Maine	5,000,000	5,000,000
New Hampshire	1,000,000	1,000,000	4,000,000	6,000,000
Vermont	2,000,000	1,000,000	8,000,000	11,000,000
Massachusetts	10,000,000	5,000,000	5,000,000	20,000,000
Rhode Island	6,000,000	6,000,000
Connecticut	1,000,000	1,000,000	9,000,000	11,000,000
Total	14,000,000	8,000,000	37,000,000	59,000,000

New Association to Protect Timberlands in North Carolina

A new timberland owners' forest protective association has been formed in the southeastern section of North Carolina with a membership representing some 100,000 acres of timberland. The new association is the first of its kind to be organized in North Carolina since the passage of the Clarke-McNary Law. There are very extensive timberland holdings in this section of the State and it is expected that the area of association lands will be very materially increased when the State is able to allot larger funds to match the private assessments.

At the initial meeting the association decided to follow closely the Southern West Virginia Forest Protective Association in the matter of organization. It is the purpose of the association to cooperate in the most practical way possible with the North Carolina Forest Service. The assessment of 1 cent per acre per year will be paid into the State forestry fund to match an equal allotment of State and Federal funds. In this way the State, and through the State members of the association, will receive the maximum benefits under the cooperative provisions of the Clarke-McNary Law.

I. R. Walter has been elected as the first president of the association. For a time K. E. Kimball, district forester of the North Carolina Forest Service, will serve as secretary. As soon as the area of association lands increases sufficiently to justify it, a secretary-manager will be employed.

EDUCATION AND EXTENSION

The Conference of Extension Foresters

By G. H. Collingwood, U. S. Forest Service

A conference of foresters discussing anything but forestry seems impossible. Yet that is largely what happened on January 11, 12, and 13, when extension foresters from 23 States met in Washington. The conference was arranged jointly by the Extension Service and the Forest Service of the Department of Agriculture. These extension foresters are all members of the agricultural extension services of their States, and their work has been stimulated by, if not actually established as a result of, the passage of the Clarke-McNary Act. The program was arranged with the idea of first introducing them to the organization and then telling them how to use it.

At the first session Forester Greeley urged the fullest cooperation between the extension workers and the State foresters, and made four suggestions which colored the subsequent discussions: (1) to present forestry not exclusively in terms of future timber supply but largely as a profitable use of land; (2) to free forestry from the conception that it is a deeply mysterious practice, and start out with what farm people already know and have worked out for themselves; (3) to express forest values to the people in common, everyday, homely figures of speech that bite in; and finally (4) to convince landowners that there is value in young growth.

Dr. C. B. Smith, chief of the office of cooperative extension work, pointed out that the extension foresters are a part of a great national educational organization numbering 4,883, of whom 977 are subject-matter specialists and 3,432 are county agricultural agents, home demonstration agents, and junior club leaders. To support this organization Congress appropriates annually nearly \$6,900,000, which States and counties match and further supplement with more than \$12,500,000, making a total of nearly \$19,500,000.

To say that the men listened to talks on extension methods of teaching, the building of a forestry extension program (together with ways and means of getting that program adopted), boys' and girls' club work, exhibits, and motion pictures, might imply that they sat quietly, with pencil and notepaper before them, and listened. It would be more nearly true to say that these subjects were discussed by the entire group. None of the questions discussed were straight forestry questions. All were questions of the teaching of forestry. Occasionally there arose

discussions concerning the size of tree stock used for planting wind-breaks in Iowa as compared with that used in Minnesota, of the forest fire menace, and of the value of young forest growth; but these automatically resolved into a discussion of the ways and means of getting forestry ideas across to the public.

The subject of forestry work with boys' and girls' through the 4-H Clubs met with hearty interest. All recognized that this channel offers a remarkable opportunity for getting a widespread acceptance of forestry principles. Reports from the men present indicated that New Hampshire is taking the lead in forestry work with young rural people, but a number of the other States have very promising plans for such work during the new year.

Committees reported on the making of a forestry program, the plan of work for carrying it out, forestry work with boys' and girls' clubs, and suggestions for more effective cooperation with the State foresters and other agencies within the States. Copies of these reports are to be distributed for the guidance of forestry extension activities in all the States.

Each of the men expressed the wish that this conference may be the forerunner of many others, in which more time may be allowed for discussing forestry as well as the means of teaching it. We hope that this suggestion will be carried out in the form of regional conferences in cooperation with the forestry research workers. Such conferences would be most helpful during the field season, when discussions concerning silvicultural problems could be supplemented by observation.

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Boys' and Girls' Clubs Study Forestry

Six boys' and girls' clubs have been organized in Vermont for the study of forestry. This year they are working on a course which Extension Forester Callward calls "the first grade of forestry." The children are being taught to identify trees common on the farms of Vermont and are learning something about the growth habits and commercial value of different species and something about wood utilization. The chief object of this course is to increase the children's appreciation of forests and especially to acquaint them with the value of the woodland that forms a part of practically every Vermont farm.

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Correspondence Course in Grazing

John D. Jones, assistant district forester in charge of public relations of the Forest Service in the Southwestern District (Arizona and New Mexico), reports that a correspondence course in grazing has been worked out in that district that has proved very popular with the field men. The course covers about 140 single-spaced mimeographed pages. It consists of 11 lessons, with subjects as follows:

I - (a) Determination of the class of stock to which range is best suited. (b) Grazing periods.

II - Grazing capacity.

III - Counting cattle, with detailed information as to various systems actually used, including grazing trespass experience.

IV - Salting, with detailed information on Santa Rita Range Reserve experience.

V - Cooperation.

VI - Management of sheep on the range.

VII - Range reseeding and deferred and rotation grazing as applied to Southwestern District conditions.

VIII - Wild life.

IX - Range reconnaissance and range inspection, including use of reconnaissance material in management plans.

X - Range management plans.

XI - Use of sample plots in administrative work, and a statement of the district's general objectives in adjustment of grazing to timber and watershed protection.

A few copies of this course, 25 at most, are available for distribution and will be sent on request to forest schools or to extension foresters or other persons interested. Requests should be addressed to Mr. Jones at Albuquerque, N. Mex.

Forestry in Vocational Schools

(Extracts from a letter received from James B. Berry, supervisor of the vocational schools of Crawford County, Pa.)

You asked me once to write you something about how we handled the subject of forestry in the vocational schools, of which we have five in Crawford County.

The subject of farm forestry is allotted two 40-minute periods and one double period of 80 minutes per week in the third-year work in vocational agriculture (fruit growing, forestry, animal husbandry, and shop work). However, the schedule is flexible and considerably more time may be devoted to one or another of the subjects to fit weather conditions and farm activities.

The preliminary work by the teacher of agriculture, conducted during the summer, consists of a community survey which includes data related to the farm woodlands and their utilization. In the utilization of wood there is considerable correlation with the farm shop portion of the survey. The teacher, in the light of his community survey, decides what farm woodland enterprises are of importance in the community - for example, (1) reorganization of the farm woodland on a profitable basis, and (2) the planting of waste lands and areas not required for agricultural purposes. The teacher then proceeds to analyze these enterprises, the analysis leading to the designation of the forestry practices (problems and jobs) which may serve as a basis for study, the equipment and materials needed in teaching, and the reference materials required for study. The teacher should have his "teaching" thoroughly organized before beginning the year's work.

When school opens the teacher organizes his classes and proceeds to guide his pupils in the analysis of the enterprise under consideration, listing the factors which control production and utilization and the forestry practices which have been developed in the control of these factors. The analysis is copied in pupil notebooks, where it may be referred to frequently. For example, the analysis of a farm woodland enterprise consisting of "the reorganization of the farm woods on a profitable basis" might be as follows:

Factors which control production and utilization:

1. Area	5. Utilization
2. Stock	6. Marketing
3. Culture	7. Records and Accounts
4. Protection	

Forestry practices developed in the control of above factors:

<u>Factor</u>	<u>Forestry practices</u>
1. Area	1. Surveying area 2. Mapping area 3. Selecting portion adapted to wood production and not needed for agricultural crops 4. Determining farm needs for wood 5. Determining local market needs 6. Determining area to be used for wood production
2. Stock	1. Determining amount of growing stock 2. Surveying areas not fully stocked
3. Culture	1. Determining material to be removed in cultural operations 2. Determining method of regeneration 3. Procuring seedling stock 4. Planting understocked areas 5. Felling 6. Cutting into merchantable form 7. Storing logs, cordwood, etc.
4. Protection	1. Protecting woodland from fire 2. Fighting fire 3. Removing diseased and insect-infested material 4. Protecting woodland from grazing stock 5. Protecting young trees from rodents, etc.
5. Utilization	1. Measuring product 2. Sawing logs into boards, timbers, etc. 3. Seasoning
6. Marketing	1. Determining farm needs 2. Determining local market needs 3. Selling surplus products
7. Accounts and Records	1. Keeping labor records 2. Keeping accounts 3. Determining costs 4. Figuring income

It is of course understood that the purpose of the analysis is (1) to give the pupil a bird's-eye view of the scope of the enterprise, and (2) to bring the study down to the basis of local problems. Consequently the analysis will vary somewhat from one locality to another. Undoubtedly the analysis method of organizing the study activity is one of the best in the stimulating of purposeful thinking, and this is a very real objective of education.

When the analysis is completed the teacher guides the pupils of the class in the selection of some practice (problems and jobs) which is important and timely (seasonal sequence), and this particular practice becomes the basis for the study of all facts which are related to it. For example, the pupils may decide that the practice of immediate importance is "determining the material to be removed in cultural operations," under the factor "culture." From his previously prepared analysis the teacher then lists on the blackboard the study outline related to this practice, which may be as follows:

<u>Farm Woodland Practice</u>	<u>Supervised study outline</u>
Determining material to be removed	Identification of trees (References)
	Trees adapted to site (References)
	Trees supplying material needed on farm (References)
	Form of tree (References)

All reference material (books, bulletins, circulars, etc.) should be listed by page, in order to conserve the time of the pupils. The use of a considerable mass of reference material is of benefit to the pupil, since it teaches him the sources of information.

The next step in the learning process is practice work in the particular forestry practice under consideration. This is achieved by means of the "case method," in a piece of woods under the control of the school. Under the direct supervision and guidance of the teacher the pupils put into practice the things studied; the teacher must be satisfied that the pupils understand the application of the things studied and develop the rudiments of skills (habit formation) in the particular practice. For example, in one school the teacher and pupils were given full control of a woodland tract of 5 acres. During the school year the pupils, under the direct evidence of the teacher, made improvement cuttings, determined the amount of growing stock, underplanted with seedlings from the State, and put the woodland in productive condition. In another case the school leased some 17 acres from the State and the pupils, under the guidance of the teacher, put into practice the cultural operations required.

The learning process is not completed, however, until the pupils put into practice, under actual farm conditions and with full pupil responsibility, the things studied in school and in connection with the school woodland. Each pupil is therefore required to conduct a home project of sufficient scope to demonstrate to the teacher his ability to think purposefully in the enterprise. He is not required to perform all of the work connected with the project, but he must satisfy the teacher that he can use the knowledge gained and can perform with skill the jobs involved in the forestry practices, more especially the "improved" practices. The final "testing out" of the pupil's ability to think purposefully is perhaps the most important step of the teaching process, and until it is completed there exists doubt as to the extent of the learning process.

Our greatest difficulty is that the subject of forestry is seldom included in the teacher-training curriculum. Of course we secure help from the State Forestry commission and from the extension service of Pennsylvania State College. Usually the school project woodland is listed by the extension specialist as an extension project and is visited once or twice a year by him. It seems to me that one of the most important duties of the State and extension foresters should be to assist teachers of vocational agriculture to put over the proper teaching of farm forestry in the vocational schools and departments, listing these as cooperative enterprises.

Economic Survey in the Southwest

The Texas, New Mexico, and Utah Agricultural Colleges and the Universities of Arizona and Nevada are to cooperate with the U. S. Department of Agriculture in a ranch organization and ranch economic survey throughout the Southwest. On January 15 and 16, representatives of these schools and of the Bureau of Agricultural Economics, the Bureau of Animal Industry, and the Forest Service met at Las Cruces, N. Mex., to consider plans for the survey. At the conclusion of the conference they visited the Jornada Range Reserve to observe the plan of management under which the Forest Service operates that experimental cattle unit. Present plans call for several months' study of some 300 representative ranches in the region from west Texas to southern Utah, southern Nevada, and Arizona, with a view of determining production costs and deciding what organization will accomplish the best economic results. Data will be taken in regard to organization, business methods, and costs of production on each ranch. With these data as a background the study will probably be continued on a more intensive basis for a number of years.

Recent Gifts to Forest Schools

A forested tract at La Grande, Wash., has been presented to the College of Forestry of the University of Washington by Charles L. Tharp Pack. Located on one of the principal highways of the West, and with a road frontage of about one mile, this tract has special advantages as a demonstration forest. Its present stand is estimated at one and one-half million board feet. Mr. Pack has recently presented the Forest School of Yale University with an addition to its demonstration forest near Keene, in southern New Hampshire. A third gift made by him within the last few months is a fund of \$2,000 established at Iowa State College to provide prizes for forestry students. With the double purpose of improving the spoken and written English of the students and of bringing forestry ideas before the public, it is planned to offer two annual prizes, one of \$75 and one of \$25.

Forest School Cooperates with Scouts

The Boy Scouts of Binghamton, N. Y., have a 70-acre camp ground on Cincinnatus Lake near Smithfield Flats, N. Y. This area contains a stand of second-growth hardwoods, and the scouts have been promised the cooperation of the New York State College of Forestry in putting it under forestry management. Last summer Prof. R. R. Fenska of the college made a preliminary survey and marked two acres for a thinning and improvement cutting which was then made by the scouts. It is planned to repeat this each year until the thinning is completed.

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One thousand Boy Scouts of Scranton, Pa., are to plant two trees apiece on one of the city's principal parks this spring. Each boy is to be personally responsible for the care of the trees he plants.

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The College of Agriculture of the University of Arizona expects in the near future to undertake range grazing experiments, under the direction of an experienced investigator. It also plans to develop a course in range management.

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Dr. C. A. Schenck, of Darmstadt, Germany, is concluding a course of lectures on silviculture and forest economics at the University of Montana. The course comprises six lectures a week for about three months.

Doctor Schenck plans to sail from New York on April 3 with a group of foresters whom he will conduct on a two months' tour through Europe. The party will visit interesting municipal, State, and private forests in seven different countries and will spend a week at the International Forestry Congress in Rome. They will also observe the work of forestry associations and schools.

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The public schools of Wisconsin are to introduce courses in conservation in the seventh and eighth grades. In planning this work the State superintendent of public instruction has asked for the assistance of States which have already developed such courses and for that of the Forest Service.

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FOREST SERVICE NOTES

The Value of Woods Humus as Fertilizer

By W. R. Mattoon, U. S. Forest Service

Cash Value at Present Market Rates

How much is the organic matter of the forest floor worth? As one of the items of money loss by fire in the woods we must include the loss of humus, or, in the farmer's language, vegetable matter.

In his article on "The Conservation of Fertilizer Materials from Minor Sources," in the Agriculture Yearbook for 1917, C. C. Fletcher, associate chemist of the U. S. Bureau of Soils, gives the percentage of fertilizer materials contained in oak leaves. According to his figures a ton of oak leaves contains fertilizer materials as follows:

Nitrogen (or ammonia) (NH ₃)	16 pounds
Phosphoric acid (P ₂ O ₅)	7 "
Potash (K ₂ O)	3 "

Mr. Fletcher recently stated that pine needles contain approximately the same amounts of these materials as oak leaves. On the basis of experience in hauling away the yearly accumulation of four oak trees growing in Maryland, just outside the District of Columbia, I estimate that on one acre well stocked with mature oak two tons of leaves are deposited yearly. It is likely that pines shed less, also the intolerant trees such as the ash, black walnut, and black locust. The very tolerant beech is known to have a very heavy foliage.

How much is the yearly crop of oak leaves worth per acre? Nitrogen, or ammonia, costs the farmer at wholesale rates from 12 to 20 cents a pound, phosphoric acid about 5 to 6 cents, and potash at its present very low price about 5 to 6 cents. On this basis two tons of oak leaves have a fertilizer value as follows:

Nitrogen	16 lbs. x 2 = 32 lbs., @ 15¢ = \$4.80
Phosphoric acid	7 " x 2 = 14 " " 5¢ = .70
Potash	3 " x 2 = 6 " " 5¢ = .30

	\$5.80

Thus the yearly crop of oak leaves on an acre is worth .5.80 for fertilizer.

In the burning of leaves, as is well known, little or none of the phosphoric acid or potash is lost, these materials remaining in the ashes. With allowance for this fact and for some natural loss of nitrogen by leaching and volatilization in woods that are not burned, \$4.00 probably represents conservatively the money value of the fertilizing element that goes up in smoke and gas when a single year's crop of oak leaves on one acre burns. With 4 to 6 years' accumulation of organic matter on the ground--decomposed and undecomposed--and an average loss, say, of \$3.00, in that time from natural causes, a fire would easily destroy a value of \$12 to \$15 an acre. This does not take into account the indirect damage resulting from the removal of the spongy protective soil covering, with the consequent compacting of the soil and damaging erosion from run-off of rainwater on hillsides.

How Woods Humus Makes Field Crops Grow

Chemical analysis is one thing and actual test, or demonstration, is another.

C. E. Baxter, forester in charge of 60,000 acres of the Long-Bell Lumber Co's timberlands in Arkansas, once made an experiment to find out just what woods humus would do to make field crops grow. He raked and scraped the humus from one acre of the forest floor of a heavy oak woods in Gibson County, Tenn., and spread it over one acre of ordinary crop land, working it into the soil. The land was then planted with ordinary field crops, such as cotton and corn. A careful record was taken of the yield on this acre and on a similar but untreated acre adjacent to it which received the same cultivation.

The first year's crops from the acre treated with woods humus were worth \$20.65 more than those from the untreated acre; the second year's, \$14.80 more; and the third year's, \$13.00 more. The aggregate return for three years was \$48.45 greater, owing mostly to the nitrogen, phosphoric acid, and potash contained in the humus. (The other element in the gain was the better water relations of the soil.) Gathering the fertilizer and applying it to the field cost only \$16.00; thus it was a very profitable piece of work. The story is incomplete because the comparative records of yields were taken for only three years, but at the end of that period the land fertilized with woods humus was going strong in producing heavier crop yields than those of the adjacent untreated land.

Incidentally, Mr. Baxter is making good headway in winning local public sentiment among farmers in Grant County, Ark., against the suicidal method of burning their own and each others' woods.

If any reader has information on this much neglected phase of fire damage and loss, many of us, I am sure, would like to hear about it.

Additional Forest Experiment Station Legislation

Since the legislative developments relating to the Federal forest experiment station program which were outlined in the FOREST WORKER of January, 1926, the Agricultural Appropriation Bill has passed both houses of Congress with an item providing \$30,000 for the establishment, in 1926, of a forest experiment station in California. In addition the Senate has adopted an amendment to the Bill, proposed by Senator Overman, which would increase the amount available for forest research by \$18,000. This amendment replaces Senate Bill 1161, which would have provided for the material enlargement of the Appalachian Forest Experiment Station. The Agricultural Appropriation Bill now goes to conference.

A bill (H.R.9595) has been introduced by Resident Commissioner Davila of Porto Rico which would provide for a tropical forest experiment station in Porto Rico, and appropriate \$40,000 for its investigative work.

House Bill 9388, introduced by Representative Edwards of Georgia, would provide \$50,000 for a forest experiment station in Georgia on the site of the "Old Stockade," a famous Civil War prison. The bill would also make this tract a national park.

Senator Fess of Ohio has introduced a bill to provide \$30,000 for a forest experiment station in the Ohio-Mississippi Valley, that is, the region including Ohio, Indiana, Illinois, Iowa, and Missouri. This bill corresponds to the one introduced earlier in the session by Representative Fitzgerald of Ohio.

Senator Reed of Pennsylvania has introduced a bill to authorize an appropriation of \$75,000 for a Pennsylvania forest experiment station which would serve Pennsylvania and near-by States. This is similar to a bill introduced in the past by Senator Pepper.

Recruiting the Tax Investigative Staff

In addition to Dr. Fred R. Fairchild, the director, three members have now been selected for the staff which will conduct the forest tax investigation authorized by the Clarke-McNary Act. These are H. H. Chapman, professor of forest management in the Yale Forest School; R. C. Hall of the timber section of the U. S. Bureau of Internal Revenue; and L. S. Murphy of the Forest Service.

Prof. Chapman's career in forestry, principally in the educational field, is too well known to call for a description here. His assignment to the staff of the tax study will extend from June, 1926, to

September, 1927. Mr. Hall, a member of the 1908 class of the Yale Forest School, was with the Forest Service from the time of his graduation until 1917. During the later years of this period his work was in connection with the acquisition of lands for national forests in the southern Appalachians. Since the war he has been engaged in the valuation of forest property in connection with the enforcement by the Bureau of Internal Revenue of the Federal income, corporation, and excess profits tax laws. With this experience in land acquisition and forest valuation he is admirably prepared for the valuation work which will form an important part of the tax study. Mr. Murphy has been with the Forest Service continuously since his graduation from the Yale Forest School in 1907. His work was at first almost exclusively along the lines of forest valuation in connection with national forest timber sales and land exchange work and the preparation of working plans and advice in the management of private forest holdings. Since 1911 or 1912 he has specialized in forest taxation. For the last four years he has devoted practically all his time to a reexamination and amplification of the theoretical basis of forest taxation and to a study of the results of its practical application in the various States, together with a more cursory canvass of the forest tax situation in certain foreign countries.

It is hoped that the staff may be strengthened by the addition of at least one other trained and experienced economist.

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The Cinderella of the Cypress Swamps

Cypress swamps of the South have yielded richly in valuable timber, but have not heretofore been regarded as profitable for reforestation. The "wood eternal," as it has been advertised, has been cut out clean, leaving only the "poor relations" of the swamp land, chiefly tupelo gum, a tree long considered to be of very little worth.

Now comes E. W. Hadley of the Southern Forest Experiment Station to say that tupelo gum, the cinderella of the swamps, is coming into its own silviculturally and may be the saviour of these dismal areas. Cypress will not reproduce rapidly or dependably enough to reforest them, but tupelo reproduces promptly and adequately. The growth of industry in the South and the demand elsewhere for southern woods promise an outlet for this wood. Tupelo gum is now used by the million board feet for boxes, crates, and veneer, and is beginning to be sought as a paper-pulp wood.

The total area of cypress-hardwood land is estimated as 32 million acres, or more than one-fourth the area of the combined southern pine forests. On the land already cut over are plenty of tupelo seed trees, and practically none of cypress. Stands of tupelo in the lower Atchafalaya River basin of Louisiana are growing at the rate of one cord of peeled wool to the acre each year, which is almost the average rate of growth of the southern pines.

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Progress of *Brevicromis* Infestations in Southern Oregon

The 2,500,000 acres of yellow pine in Klamath and Lake Counties, Oregon, which have not been protected against damage by *D. brevicomis* are estimated to contain 18 billion board feet of timber. The *D. brevicomis* damage in these areas is estimated by the Bureau of Entomology as follows:

1921	40 million board feet
1922	41 "
1923	50 "
1924	80 "
1925	60 "

One-thirtieth of the 271 million board feet of yellow pine killed in the five-year period is concentrated on less than 4 per cent of the survey area.

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The Selway National Forest, Idaho, with a protected area of 1,250,000 acres, during the 1925 fire season had no man-caused fires whatever. The 254 fires controlled during the season covered only 231 acres. This record was made without the help of unusually favorable weather, precipitation at forest headquarters during June, July, and August being about 12 per cent below normal.

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A display of forest seeds and seedlings prepared under the direction of C. G. Bates of the Vernal Experiment Station of the Forest Service was part of the fourth Colorado Pure Seed Show, held this winter at Colorado Springs. The seed show, which is arranged by the Colorado Chamber of Commerce, has come to be an annual event of great importance. This time it included 5,000 entries by 500 exhibitors.

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Two new Forest Service films have just been released. "What the Forests Mean to You," in two reels, brings out the usefulness and beauty of forests, and shows in detail the processes of lumbering and milling. "Trees of Righteousness," a three-reel film, deals with the practice of setting fire to woodlands ^{in Arkansas} in order to improve forage. The setting of this picture is a rural community, and the treatment of its story introduces strong elements of human interest and religious appeal.

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On Forest Land

A song for American Forest Week

By L. C. Everard, U. S. Forest Service

(To be sung to tune of "My Maryland")

Great forests grew in days gone by
 On forest land, on forest land,
Where now bare sands and black stumps lie
 On forest land, on forest land;
For saw and ax in careless hand
 Have swept the trees from forest land,
And fire has flung his glowing brand
 On forest land, on forest land.

The acres burned, the acres bare,
 On forest land, on forest land,
The acres wrecked by lack of care,
 On forest land, on forest land,
Now spread their millions, barren, dead,
 Where no man works, no game is fed;
And muddy streams their banks o'erspread,
 On forest land, on forest land.

Drive out the fire that seeks to spoil
 Our forest land, our forest land,
And save the trees and save the soil,
 On forest land, on forest land.
We'll cut our logs with careful hand,
 Leave seed to grow a later stand,
And plant with trees the idle land--
 Make forest land a harvest land.

GENERAL FOREST NEWS

Richmond Conference Urges Forestry Education

Forestry education for the public, young and old, was the leading subject of discussion at the joint meeting, in January, of the American Forestry Association and the Southern Forestry Congress. "Our plans and our hopes here," said George D. Pratt, president of the American Forestry Association, in addressing this important Richmond meeting, "will be unfulfilled unless we return to our homes and our work determined to redouble our efforts for popular education in forestry." Daniel Carter Beard, national Boy Scout commissioner (better known as Dan Beard), who was the first speaker at the evening meeting following a banquet, said, "We are making a desert of the United States. The only way to stop this devastation is to teach the youth of the country the value of trees."

At the conclusion of a two-day program of addresses by representatives of State, Federal, and private organizations, including lumber companies, the conference adopted resolutions urging that the States individually undertake fact-finding surveys with the purpose of formulating adequate forestry policies, and that the States of South Carolina, Florida, Mississippi, and Arkansas enact forestry legislation at the next sessions of their general assemblies. Other resolutions indorsed the plans of the National Academy of Sciences for a world survey of forest resources, the campaign of the American Forestry Association to convince the public of the necessity for forest fire prevention, and the effort of the Save the Redwoods League to acquire representative tracts of redwood forest. In the field of national legislation the conference expressed strong opposition to "any legislation which would give stockmen, rather than the Secretary of Agriculture, authority to regulate grazing anywhere in the national forests"; recommended the passage of pending bills for the establishment of a national arboretum near Washington, D. C., and of the McNary-Woodruff bill; and appealed to Congress to make increases in the sums recommended by the Budget Commission for the acquisition of forest lands from \$1,000,000 to \$3,000,000, and for cooperation with the States in the prevention and suppression of forest fires from \$660,000 to \$1,500,000.

The Society of American Foresters at its annual meeting in December at Madison, Wis., adopted a resolution declaring that forest research in the United States should be recognized by special legislation such as that providing for the agricultural experiment stations. Other resolutions indorsed the position of Forester Greeley in regard to the proposed grazing legislation and favored the McNary-Woodruff bill.

The second convention of the National Conference on Outdoor Recreation, held in Washington, D. C., on January 20 and 21, brought together 250 delegates representing organizations in all parts of the United States. The conference in its resolutions indorsed the ten-year program for acquisition of national forests which is embodied in the McNary-Woodruff bill and protested against legislation that would release grazing on the national forests from strict administrative control, stating that "unregulated grazing has been the primary cause of forest destruction in many countries and in every portion of America where it has been permitted, and such unregulated grazing would destroy the national forests and defeat the purpose of their establishment."

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Wisconsin Paper Company Goes in for Forestry

A large-scale private forestry project in Wisconsin is being launched by the Nekoosa-Edwards Paper Co. of Port Edwards, Wis. This company has employed F. G. Kilp as its forester and placed him in charge of 3,000 acres of land, of which at present about 1,000 acres are practically barren, some 500 acres are partially covered with trees, and the remaining 1,500 acres are well forested. About 100,000 jack-pine seedlings will be set out this spring and the company hopes next year to plant 300,000 seedlings, mostly of jack pine but including small numbers of white pine, Norway pine, and white spruce. Forest supervision and fire protection will be extended to the whole area. The company plans also to raise planting stock to be sold to the public at cost.

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Cottonwood's Not So Slow

L. J. Leffelman of the State forester's office at Wooster, Ohio, has been making growth studies of cottonwood plantations in Ohio. Not all of his data have been worked up, but he has given out the following preliminary statement—which indicates that cottonwood may have more virtue than foresters have usually credited it with:

Growth of Cottonwood (spacing 9x9)

Age	D.B.H.	Height
10	5.86 in.	47.1 ft.
13	4.9 "	37 "
13	6.9 "	52.3 "
14	8.08 "	59.7 "
11	5.06 "	41.2 "
11	4.7 "	42.02 "

At this rate $11\frac{3}{4}$ acres of cottonwood will yield 211.5 cords in 14 years. At \$8 a cord this yield will bring in \$1,692, or \$10.28 per acre per year.

Arkansas Company Practices Forestry and Close Utilization

The Crossett Lumber Co. of Crossett, Ark., has put its forest lands under management. It is developing a comprehensive system of fire protection. On cut-over lands the ties are pulled up from the old tramroads and the soil is plowed, kept clear, and worked. Single furrows are plowed for fire checks and have demonstrated their effectiveness for that purpose. An organized fire patrol is maintained during dry seasons. Oil-burning engines furnish the traction power on all loaders and logging engines and also on the main railroads crossing the company's lands--the Arkansas Central, owned by the company, and a branch line of the Chicago, Rock Island, and Pacific. Under the direction of a trained forester, Wm. K. Williams, seed trees are spotted in areas to be logged and in thinnings every tree to be cut is marked. A minimum diameter limit of approximately 14 inches is maintained. On several thousand acres a cutting method has been tried out which leaves a large amount of timber of diameters up to about 18 inches on the stump for an early second cut. In logging to the yardings along tramroads horses and mules are used.

The company is awake to the importance of research, and in some half dozen different locations has established sample plots. These are fully marked as demonstration areas, with signboards that have aroused much curiosity and interest in the subject of growing timber as a business enterprise.

Lastly, the mill is utilizing and marketing everything that comes from the saw except sawdust, bark, and mere splinters of wood which are used for fuel. A trip through the two pine mills, the hardwood mill, the planing mills, and the box mill, is a joy to anyone interested in timber conservation. Every piece of mill "waste" 1 by 1 by 12 inches or larger is saved, sorted, and stacked in designated sections in the sheds. The salesmen on the road pick up orders for toy and novelty stock and for small boxes, which utilize all of this material. A carload of slats for bottoms for 8-inch grape baskets was being loaded last month, for shipment to Penn Yan, N. Y., and one of blocks from 2-inch cut-offs to be used in packing automobiles in box cars.

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The Interstate Trust and Banking Co. of New Orleans each year offers every high school in Louisiana and Mississippi a medal to be awarded for the best essay on some subject of vital interest to the people of the two States. The topic chosen for the essay contests of 1925 was:

"The ways and means of reducing the present great danger of the exhaustion of our supply of timber and the direct effects on certain of our industries and the indirect effects on the happiness and prosperity of our people if the depletion of our timber through fire, waste, absence of reforestation, and lack of economy in the use of timber by architects, builders, and the public generally is allowed to continue."

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Farm Forestry in Ohio

By Forrest W. Dean, Extension Forester, Wooster, Ohio.

J. S. Clinger of Burgoon, Sandusky County, Ohio, has 17 acres of woods where he recently marked 269 trees as ready for the market. These trees were estimated to contain nearly 150,000 board feet of lumber, and were sold to a local buyer for \$4,000 on the stump. This was an average stumpage price of more than \$35 per thousand for all species. Most of the trees were elm, red oak, and white ash. The elm brought \$25 per thousand board feet, the oak \$35 per thousand, and the white ash \$45. Other species included in the sale were basswood, burr oak, hickory, black ash, butternut, and sycamore.

Mr. Clinger's woods are actually in better condition now than before the cutting. There remains about 50,000 board feet of timber, the trees ranging from 13 inches to 40 inches in diameter. In addition there is an excellent stand of seedlings and saplings. Except for four or five acres which are included in a permanent pasture the woods are kept free from live stock, and there is practically no danger from fire. Under these conditions the woods promise a continuous forest crop, and a demonstration of private forestry that will be of increasing value and influence.

The city of Seattle is spending about \$30,000 a year on the development of its forest property. This municipal forest, which is one of the largest in the United States, is located on the city's watershed on the west slope of the Cascade Mountains. It is under the direction of Dean Hugo Winkenwerder of the College of Forestry of the University of Washington.

The city council of Frederick, Md., have voted \$1,000 for the erection of a lookout tower, which will be operated as a part of the fire-detection system of the State. They are also planning to purchase about 1,200 acres of land as an addition to the city's protected watershed.

Senator Capper has reintroduced his forestry bill, which would provide for Federal control of timber growing on privately owned lands through a system of taxation and of bounties to operators harvesting forest products in accordance with standards set by the Secretary of Agriculture.

FOREIGN NOTES

If you Plan to Plant a Forest, Look up its Ancestors

By W. N. Sparhawk, U. S. Forest Service

Pedigree may count in raising first-class timber even more than in growing corn or beef, judging from a report of the Austrian Forest Experiment Station.

In order to test the influence of ancestry, acorns of pedunculate oak obtained from 21 localities in various parts of Europe were planted near Vienna in 1904. The seedlings were transplanted in the field in 1905, and have been measured at intervals.

At the start the results confirmed the findings of other investigators, larger seed generally producing more vigorous seedlings. The 7 heaviest lots of acorns (average 74 to the pound) produced seedlings averaging 9 inches tall at the end of the first year, while the seedlings from the 7 lightest lots (average 145 to the pound) averaged only 6 inches in height at that age. After 7 years the plants from the heavier acorns were still 25 per cent taller. At the end of 18 years, however, the advantage due to size of seed had completely disappeared and the trees from the light acorns were slightly taller than those from the heavy acorns. The shortest trees (12.1 feet tall) came from heavy acorns (88 to the pound), and the tallest trees (19.3 feet) from relatively light acorns (112 to the pound).

The oaks that grew the fastest were descendants of fast-growing, well-formed mother trees growing in regions with climate similar to that of Vienna. The descendants of mother trees growing in distinctly different climates, particularly those from regions with a mild, humid, oceanic climate, did not do so well. The acorns from southern France, for instance, were collected from a tree of unusually rapid growth, yet the young oaks which grew from them grew the slowest of the 21 lots. The oaks from mild climates suffered severely from late frosts after growth commenced in the spring, while those from cool regions, such as Sweden, were not injured. The influence of atmospheric and soil moisture conditions of the homeland was also found to affect the rate of growth. The extreme drought of 1917, when only 35 per cent of the normal precipitation fell during the growing season, practically stopped the growth of trees whose parents grew in southern France and near the Adriatic coast, and also of those from moist bottom lands in central Europe. It retarded the growth of trees from localities with moisture conditions

similar to those of the planting site only moderately, and that of trees from dry sites in northern Europe not at all. The oaks from warm regions generally put out new shoots late in the summer, which were attacked by oak mildew; those from cooler regions did not, and were free from mildew.

But even trees of a favorable climatic race did not grow well if their mothers were short-boled, bushy crowned, crooked, or otherwise ill-formed. The plots showed very plainly, as has also been found in Denmark, that the individual characteristics of the mother tree may be handed down to the offspring. While 40 to 50 per cent of all the trees on the best plots had straight boles, on two plots planted with acorns largely from bushy crowned trees every stem was crooked. Moreover, the degree of crookedness was found to increase with increase in percentage of crooked stems, and the straighter stems had the larger average diameters. The trees on several plots can never produce anything but firewood.

The report urges that seed to be used in reforestation be obtained from localities with climate and soil moisture conditions as nearly as possible like those of the planting site, and that it be collected only from well-formed, thrifty, narrow-crowned mother trees of rapid growth.

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Quebec Debates the Christmas Tree Question

At the annual meeting, on January 26, of the East Townships Associated Boards of Trade of Quebec, it was proposed that the Canadian Government prohibit exportation of Christmas trees to the United States. Members opposed to such action argued that the Christmas-tree trade provides the farmers of the Province with profitable employment in an otherwise dull season and that the thinning of congested evergreen thickets by the cutting of Christmas trees is good forestry practice. They said also that in many cases Christmas trees were obtained by clearing pasture lands of scrub growth that would never have developed into valuable timber. Those favoring the ban replied that the amount realized annually by the farmers of the Province from the Christmas-tree exports, exclusive of labor, was only about \$55,000, and that each year's crop of Christmas trees if permitted to grow for twenty or thirty years could at the present price of pulpwood bring in at least \$1,250,000. They stated that present cuttings are by no means limited to the scientific thinning of young growth but are sacrificing the finest trees and leaving defective ones.

The meeting adopted a resolution authorizing the president of the Eastern Townships Associated Boards of Trade to prepare and present a memorial describing the damage which is resulting from the cutting of Christmas trees and requesting the Dominion Government and the Government of Quebec to take drastic action to prevent this damage.

Australian Trees in Alien Lands

By H. MacKay, late conservator of forests for Victoria

(Excerpts from a lecture delivered before the Forest League, Melbourne, and reported in The Gum Tree, official organ of the Australian Forest League, for December, 1925.)

"In dealing with this subject, it is of interest to show in the first place how far Australian trees, and especially eucalypts, have spread over the world in the search of foreign nations for good forest hardwoods. In South America Argentina, Peru, Venezuela, and Chile have established plantations, and in Chile especially the plantings have already attained a respectable area. In North America the States of California, Arizona, and Florida have devoted much attention to the growing of this group of trees. In southern California alone the plantings have reached some 25,000 acres, and this is in a State which has such fine indigenous conifers as redwood, Oregon or Douglas fir, Port Orford cedar, and sugar pine. In South Africa, where extensive areas have been long denuded of the fine native trees, such as yellowwood, sneezewood, and stinkwood, the planting and sowing of eucalypts and wattles has been a national necessity for timber as well as fuel, and at the present time the Union has over 100,000 acres of eucalypts, apart altogether from the 280,000 acres of black feather-leaf wattle, which is nearly all in the province of Natal, and owned by private companies.

"In the Nilgherry Hills, Madras, British India, large plantations of blue gum, exceeding 1,600 acres, have long been established, and yield regularly large supplies of fuel. In the Punjab, plantations are steadily being laid down along the new irrigation channels; and in Upper Egypt and the Sudan hardy gums, as well as casuarinas and acacias, are now sown and planted on the river silt of the Nile, with marked success....."

"France, we are told, was the first country to introduce the seed of eucalypts into Europe. La Billardiere, the botanist of the great French naval expedition near the end of the 18th century, first collected seed of the blue gum near Hospital Bay, on the Huon River, in southern Tasmania, and some of this seed was tried both at Paris and in the south of France..... At the present day, from Montpellier eastward through Marseille, Toulon, Nice, Grasse, and Monaco, and along the great Corniche road into Italy, fine belts of groves, as well as solitary trees, may be seen, mingled at times with the native olive, Corsican pine, and pinaster which clothe the hills of red sandstone along that coast....."

"(In Italy) what attracted me most were the eucalyptus plantations at the old Abbey Tre-Fontane, some four miles south of the city, on the edge of the Campagna. Here, for a long period, the inhabitants suffered from malaria, the mortality at times being high. Several monastic orders

occupied it in succession, and had to abandon it, till at last the Pope granted it to the French Trappist monks.... In 1870 the monks obtained from Von Mueller, in Melbourne,...a supply of blue-gum seed for planting, in the hope of gradually drying up the drift water and swamps which after heavy rain filled the valleys. The long, rolling hills above the main valley are composed of porous red volcanic soil, and no system of proper drainage could be carried out save at great expense. In the first year over 55,000 young trees were planted, the monks walking to and fro from their temporary quarters in the city to do the work....The mechanical absorbent effect of these quick-growing, strongly-rooted trees, with some simple surface drainage, soon made an improvement, and to-day the abbey is regarded as quite a healthful place....The trees first planted were spaced 12 to 16 feet wide, and produced much branch-wood. In 1917-18 the older portions were cut out for the fuel supply of the city. At the present time further cuttings are regularly made for the city's firewood.On the plantation new sprout growth springs vigorously from the stump, and thus, on the rich soil, with ample subsoil moisture, regular crops for a long period are assured."

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Are the Australian Forests Dwindling?

A report to the Australian Government by C. E. Lane-Poole, Commonwealth forestry advisor, on the subject of a proposed Federal forestry policy reads in part as follows:

"We are importing 42.18 per cent of our requirements in timber, a figure which in view of the youth of Australia and its relatively small population is very disquieting."

"Since the war American woods have made up the bulk of our imports, and of these 90 per cent was Oregon, or, as it is called in Canada, Douglas fir. Canada supplies a proportion, but the United States are responsible for the heaviest shipments."

"Western Australia is cutting out her Jarrah and Karri forests six times as fast as they are growing. Were she to cut according to forestry rules, i. e., cut only the increment of her forests, she would have no timber for export overseas. Her surplus is, therefore, really only temporary, and the exports have been dwindling as the available forests have been butchered."

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Hungarian Forests and Forest Planting

The forests of Hungary cover 2,920,000 acres. The State owns 115,000 acres and the municipalities 430,000 acres, leaving 78 per cent of the total forest area in private ownership. The oak timber forest includes 930,000 acres, the oak tannin forest 620,000 acres, beech forests 1,250,000 acres, and pine the remaining 120,000 acres. About 300,000 acres of waste lands, including scrubs and barrens, not included in the above figures, are in need of planting. Since 1920 a total of 39,040,000 trees have been planted on 16,800 acres of land. Of this planting 70 per cent has been on forest lands denuded by cutting and fire, and the rest on the so-called "waste lands."

Hungary is divided into 6 regional districts, to which are assigned 27 forest inspectors. Each of the 82 forest stations (forests) is supervised by a technical forester and has a corps of rangers and guards. Each official in charge of a forest unit is a graduate of the Royal Hungarian Forest College. Forest rangers must pass an examination at a training school maintained by the State.

Owners of large forests are required by law to employ expert foresters, and owners of small forests may do so jointly.

Public Forests in Bulgaria

In Bulgaria half the forested land is in community forests and one-third is owned by the Government, so that more than 80 per cent of the total is in some kind of public ownership. As in the United States, the Federal forest lands are situated principally in the mountain regions. The community forests are chiefly in those portions of the country that are least heavily forested and where presumably the communities feel most acutely the need for timber. For many of the communities in the south and east the community forests are the principal source of timber, and in some cases they are practically the only source.

Among the most important species in the Bulgarian forests, which total some 3,000,000 hectares, are the hardwoods oak, beech, ash, elm, maples, linden, birch, poplars, alders, and willows, and the conifers Scotch pine, spruce, fir, and Nepal pine. About 85 per cent of the species are hardwoods; of which the oak is about half.

(From an article by Th. Zacharieff in the Swiss Forestry Journal for January, 1926.)

Poland contains 21,000,000 acres of forest land, of which one-third is owned by the State. On the remaining two-thirds the State has definite and specific control of cutting, protection, and utilization.

One Way of Encouraging Tree Planting

Pure stands of mature oak are rare in Denmark. But there are still to be found some old trees--almost all crooked and damaged as the result of excessive pasturing during past centuries--particularly in southern Jutland, where an ordinance of 1737 prohibited young people from marrying until they had planted 10 young oaks or 15 beeches of good size and had taken care of them for three years.

From the Denmark Forester.

Veneer in Japan

Veneer is another of the modern occidentalisms that has been taken up extensively by the Japanese. Introduced into the country in 1909 by the Japanese Department of Agriculture, it is now much used for furniture, doors, car construction, graphophones, toys, and airplanes, and for other purposes. One factory is reported as producing 20 million square feet a year for domestic use and export.

Oak veneer is said to be most in demand in that part of the world, but cherry, maple, birch, and ash are also used.

Wyre Forest, a thousand acres of ancient oaks in Worcestershire, England, which in the days of Robin Hood was a royal hunting ground, is to be cleared by the modern woodman and replanted in fir and larch. The authorities have decided that the old oaks, while picturesque, are useless and occupy altogether too much space for practical purposes. Canadian foresters are to have charge of the reforestation.

The 1926 program of the British Forestry Department includes the laying out of more than 15,000 acres in England and Wales. Spruce, fir, and cedar seeds have been brought from Canada. At Thetford Marsh the department plans to create Britain's largest forest since the days of the Conqueror.

Canada Lumberman, February 15.

PERSONALS

Paul G. Redington, district forester of the California District, has been called to Washington to direct the public relations work of the Forest Service. Mr. Redington has been connected with the Forest Service almost continuously since his graduation from the Yale Forest School in 1903, serving in many western and southwestern States. He has been in charge of the California District for five years.

Stuart B. Show is succeeding to Mr. Redington's California post. Mr. Show, likewise a graduate of the Yale Forest School, has been with the Forest Service since 1910. He has specialized in research, and has had extended experience in the forests of California.

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George D. Pratt, of New York, was reelected president of the American Forestry Association at its December meeting in Richmond. At the same time H. L. Kayton, of Savannah, was elected to the presidency of the Southern Forestry Congress.

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Forest Inspector I. F. Eldredge has resigned from the Forest Service to become forest manager for the Western Paper Makers Chemical Company. His immediate job is the organization of operations on a tract of about 200,000 acres, chiefly longleaf and slash pine, in southern Georgia. Eli, as he is affectionately called throughout the Forest Service, declares that this is precisely the opportunity he has been looking for for years, and that he is going to show the world how turpentine, rosin, and lumber production on a permanent basis can be run as a business in the United States. Incidentally, this is another case of business undertaking forestry, with a good forester in charge.

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State Forester F. W. Besley of Maryland and Alfred B. Hastings of the Forest Service have been nominated for reelection as president and vice president, respectively, of the Yale Forest School Alumni Association.

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George R. Phillips, for some time assistant State forester of Indiana, has been appointed State forester of Oklahoma. He has already assumed office, with headquarters at Oklahoma City.

Samuel T. Dana, director of the Northeastern Forest Experiment Station, was elected president of the Society of American Foresters at its annual meeting in December. Other officers are: Vice president, Paul G. Redington; secretary, G. Harris Collingwood; treasurer, Samuel B. Detwiler; member of executive council, Thornton T. Munger.

Prof. Woodbridge Metcalf, who for 11 years has been in charge of the courses in silviculture, dendrology, and forest protection at the University of California, has left that position to become extension forester for California. He began his new work in February.

George M. Hunt, chief of the section of wood preservation in the Forest Products Laboratory, has just started for Europe, where he plans to spend five months investigating the state of wood preservation in about twelve different countries.

John D. Guthrie, assistant district forester, Portland, Oreg., won the \$500 prize offered by Charles Lathrop Pack for a paper presenting in a popular way the best contribution to the advancement of forestry in 1925. Mr. Guthrie's paper, "The Public Relations of Forestry," was one of 14 entered in the contest.

F. S. Baker, assistant district forester in charge of public relations in the Intermountain District, is leaving the Forest Service to accept a position as associate professor of forestry in the University of California.

F. W. Dean, assistant forester at the Ohio Agricultural Experiment Station, has been appointed extension forester for Ohio. He will maintain headquarters at Wooster.

William Maughan, a graduate of the forestry department of the University of Minnesota in the class of 1925, has joined the staff of the New York State College of Forestry as instructor in forest engineering.

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